

S.D.E.

M.C.A. SEM - I : WINTER - 2017  
SUBJECT: ELEMENTARY ALGORITHMICS

Day: **Tuesday**  
Date: **12/12/2017**

Time: **10.00 A.M. TO 1.00 P.M.**  
Max. Marks: 80

**W-2017-4412**

**N.B.:**

- 1) Attempt any **FIVE** question from Section –I and any **TWO** questions from Section–II.
- 2) Figures to the right indicate **FULL** marks.
- 3) Answers to both the sections should be written in **SEPARATE** answer book.

**SECTION-I**

- Q.1** Define an algorithm. State its characteristics. Write an algorithm to find maximum among given 10 numbers. (10)
- Q.2** Write an algorithm or Pseudocode to find sum of digits of given numbers. (10)
- Q.3** Draw a flow chart to convert given decimal number into binary number. (10)
- Q.4** Write a Pseudocode to sort given n numbers in ascending order by using insertion sort. (10)
- Q.5** Write an algorithm to accept n numbers from user, count even and odd numbers in it. (10)
- Q.6** What is Time Complexity? Discuss how to calculate time complexity of an algorithm. (10)
- Q.7** Write short notes on any **TWO** of the following: (10)
- a) Modularization
  - b) Program validation
  - c) Recursion

**SECTION-II**

- Q.8** Write an algorithm to print the following pyramid. Implement it using C language. (15)
- ```
      1
     2 2
    3 3 3
   4 4 4 4
```
- Q.9** Write an algorithm to accept n numbers store those in an array and remove the duplicate among those. (15)
- Q.10** Write an efficient algorithm to search a word in an array of strings, provided the list is sorted. Justify its efficiency. (15)

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